



# Revitalization of Third Front Industrial Heritage and Regional Economic Transformation: A Case Study of the Median GDP Area of Leshan, Sichuan Province

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**Abstract.** The industrial heritage of the Third Front Construction represents a unique stock asset in central and western China, and its adaptive reuse holds strategic value for the economic transformation of resource-based regions. Taking Leshan—a typical median-GDP prefecture-level city—as a case study, this paper finds that: its moderate economic scale and suitable topography provide both economic viability and spatial carrying capacity for heritage revitalization; the spatial distribution pattern of Third Front relics offers a resource base for constructing a cultural tourism industrial chain; and through four pathways—functional replacement, scene reconstruction, community symbiosis, and new business format generation—the region can transform toward an integrated culture-tourism industry. The study demonstrates that median-GDP areas can leverage moderate fiscal input to generate multiplier effects and achieve a transformative path, offering replicable experience for similar regions.

**Keywords:** Regional Economic Transformation; Third Front Construction; Industrial Heritage; Industrial Upgrading

## 1 Introduction

China's regional economic development has entered a critical stage of structural transformation, wherein resource-based cities and old industrial bases in the central and western regions face mounting pressure to upgrade their industrial structures and revitalize stock assets. The industrial heritage of the Third Front Construction (TFC), scattered across mountainous hinterlands in central and western China, represents a unique spatial asset with significant yet underexploited potential for adaptive reuse. Initiated in the mid-1960s as a strategic national defense and industrial relocation program, the TFC relocated millions of workers and established thousands of factories in inland provinces, fundamentally reshaping the industrial geography of western China [1]. Today, as many of these facilities have been decommissioned or relocated, their physical

remnants—ranging from secret military installations to mining towns and railway corridors—constitute a distinctive category of industrial heritage that embodies collective memory, technical aesthetics, and spatial resources.

## **2 Theoretical Logic of Industrial Heritage Revitalization Driving Regional Economic Transformation**

Industrial heritage research has evolved from industrial monuments to industrial heritage, and from individual site protection to holistic regional conservation. In 1955, Michael Rix proposed the concept of “industrial archaeology,” initiating academic exploration of industrial heritage protection [2]. The establishment of the International Committee for the Conservation of the Industrial Heritage (TICCIH) in 1978 and the adoption of the Nizhny Tagil Charter in 2003 marked the maturity and internationalization of heritage conservation principles [3]. In China, the adoption of the Wuxi Proposal in 2006 officially launched the country’s industrial heritage conservation movement [4].

In the practice of industrial heritage revitalization, four theoretical pillars can be identified: First, the “Capital-Capacity-Change” theory [5], which holds that heritage revitalization results from the synergy of multi-capital integration, stakeholder capacity building, and systemic change. Second, the symbiosis philosophy proposed by Kisho Kurokawa [6] and the organic renewal theory advanced by Jane Jacobs [7] emphasize interdependence among elements and retention of historical fabric, providing methodological guidance for reconciling industrial heritage with urban, natural, and cultural contexts. Third, the scene theory from the Chicago School of urban studies [8] advocates upgrading heritage from museumification to scenification, creating culturally meaningful spaces to enhance visitor experience. Fourth, culture-tourism integration theory [9] transforms the spatial language, technical aesthetics, and collective memory of industrial buildings into tourism products, achieving a win-win for cultural preservation and economic development. Moreover, urban-type Third Front industrial heritage exhibits resource complementarity with cultural tourism development and urban renewal. Collectively, these theories point to a core proposition: the revitalization of industrial heritage is essentially a process of spatial value restructuring and industrial structure iteration, which can be summarized into three dimensions—resource base, revitalization pathways, and transformation effects.

## **3 Regional Economic Characteristics and Industrial Heritage Protection Investment in Sichuan Province**

The feasibility and pathway choices of regional economic transformation primarily depend on the region’s economic endowment. Gross Domestic Product determines the scale of fiscal resources, while geographical conditions affect the cost of industrial layout; the matching degree between the two determines whether revitalization can generate sustainable returns.



successful revitalization cases of different types, such as the Jiayang Coal Mine and the 909 Base.

**(2) Comparative Analysis of GDP Input and Protection Investment in Typical Prefectures**

Considering the geographical distribution characteristics of Third Front industrial heritage—scattered along the eastern edge of the Hengduan Mountains and within mountain areas of Sichuan—this paper selects five representative prefectures for analysis of their investment in Third Front heritage protection. The results are summarized in Table 1.

**Table 1.** 2025 GDP and Estimated Industrial Heritage Protection Investment Shares in Selected Sichuan Prefectures (Unit: 100 million CNY; growth rates are year-on-year).

| Prefecture | 2025 GDP | Growth Rate | Culture-Tourism/Tech/Heritage Investment        | Estimated Share for Industrial Heritage Protection |
|------------|----------|-------------|-------------------------------------------------|----------------------------------------------------|
| Chengdu    | 24763.6  | 5.29%       | Not disclosed (estimated >200)                  | Low (dispersed resources)                          |
| Leshan     | 2501.54  | 3.04%       | 28 (culture-tourism dominated)                  | High (targeted focus)                              |
| Mianyang   | 4600.66  | 6.05%       | approx. 90 (technology-dominated)               | Relatively high (relying on research institutes)   |
| Panzhihua  | 1409.57  | 2.50%       | approx. 30-50 (Third Front core)                | High (both protection and revitalization)          |
| Ya'an      | 1131.60  | 4.39%       | approx. 5-10 (culture-tourism, digital economy) | Medium (specialized promotion)                     |

*Note:* Data mainly derived from the 2025 official statistical bulletins issued by the National Bureau of Statistics Survey Office in Sichuan and annual economic reports released by respective prefecture-level governments or statistical departments.

Leshan’s GDP ranks in the middle tier of the province. This avoids the risk of heritage erosion by commercial development, as seen in high-GDP Chengdu (which accounts for 36.6% of the province’s GDP and ranks 7th nationally), and differs from Mianyang—a provincial sub-center of economy—where higher economic scale steers transformation toward technology-dominated pathways, despite its outstanding scientific and spiritual values from Third Front military heritage. For Panzhihua and Ya’an, which also abound in Third Front heritage, the former promotes “industrial heritage + health tourism” with a “sunshine+” engine, while the latter explores a distinctive “Third Front heritage + Sichuan-Tibet economy + culture-tourism integration” path. However,

constrained by economic size or geographic conditions, the replicability or market reach of their pathways remains somewhat limited. In contrast, Leshan's median GDP precisely matches the funding threshold required for industrial heritage protection, enabling a "ecology + industry" culture-tourism core positioning at moderate development costs, thus providing adequate and sustained financial support for heritage revitalization.

#### 4 Revitalization Models and Regional Synergy of Third Front Industrial Heritage in Leshan

Leshan's Third Front industrial heritage is basically distributed along specific geographical corridors—following the rivers (Minjiang River, Dadu River) and the railway (Chengdu-Kunming Railway)—exhibiting a pattern of "broad dispersion, small-scale concentration." From an industrial economics perspective, this spatial configuration precisely constitutes the spatial framework for a cultural tourism industrial chain.

##### (1) Revitalization Models

Leshan administers 11 county-level divisions; except for Jingyan County, Muchuan County, and Mabian Yi Autonomous County, the remaining eight districts and counties all host Third Front relics of certain scale. By reviewing nine distinctive Third Front industrial heritage sites in Leshan, their protection and revitalization models can be categorized along four pathways: functional replacement, scene reconstruction, community symbiosis, and new business format generation. Details are shown in Table 2.

**Table 2.** Revitalization Models of Third Front Industrial Heritage in Leshan.

| Revitalization Pathway | Typical Cases                                                                                          | Specific Model                                                                     |
|------------------------|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Functional Replacement | Nuclear Industry Southwest Institute of Physics (585 Institute) on Xiaoba Street → China Fusion Museum | "University + Museum + Industrial Site" Trinity model                              |
|                        | Jia Yang Coal Mine, Qianwei County → Industrial Tourism Scenic Area                                    | Transformation from energy mining area to cultural tourism scenic spot             |
| Scene Reconstruction   | Nuclear Power 909 Base, Jiajiang County → National Cultural Landmark & Red Education Base              | Transformation from "Top-Secret Military" site to national-level cultural landmark |
|                        | Jiajiang Chengdu-Kunming Railway Ruins Park                                                            | Conversion of industrial ruins into public leisure space                           |
|                        | Jinkouhe Railway Corps Museum (Guan-cunba Station on the Chengdu-Kunming Railway)                      | Display of railway corps spirit with immersive red education experience            |

| Revitalization Pathway         | Typical Cases                                                                          | Specific Model                                                             |
|--------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| Community Symbiosis            | Jinkouhe Third Front Memory Town (former Honghua Industrial employee residential area) | Creation of a tourism-themed street with a retro vibe                      |
|                                | Micro-renewal of Leshan Paper Mill (605 Factory) on Tongjiang Street                   | Community-oriented renovation using a "micro-renewal" strategy             |
| New Business Format Generation | Gongzui Hydropower Station (515 Project) & Red House Complex, Shawan District          | Transformation from industrial site to film base / culture-tourism complex |
|                                | Yongli Sichuan Factory site & Dongfeng Electric Machinery Factory, Wutongqiao District | Integration of industrial culture experience and red education             |

**(2) Regional Synergy**

Viewed at a larger spatial scale, the cross-regional linkage of Leshan’s Third Front heritage has economic significance beyond simple tourist route connections. The Dadu River–Chengdu-Kunming Railway corridor links cities such as Leshan, Ya’an, and Panzhihua—exactly the most concentrated belt of economically underdeveloped areas in southern Sichuan. By creating a “Third Front Memory” thematic route, it is possible to transform scattered heritage resources into a bond for regional tourism collaboration, thereby promoting industrial complementarity and market sharing among towns along the corridor. Under the framework of the Chengdu-Chongqing economic circle development, Leshan can serve as an important hub of the southern Sichuan Third Front heritage network, forming a pattern of differentiated development and functional complementarity with Mianyang (China Science and Technology City, i.e., military heritage) and Panzhihua (steel industrial heritage). Such cross-regional industrial synergy not only amplifies the economic radiation radius of individual heritage sites but also helps cultivate a new growth pole in southern Sichuan characterized by “industrial culture + culture-tourism integration,” providing new momentum support for coordinated regional development.

**5 Conclusions and Policy Implications**

Taking Leshan as a case, this paper examines the revitalization of Third Front industrial heritage from the perspective of regional economic transformation. Leshan has transformed its industrial relics scattered in rural hinterlands into new integrated culture-tourism business formats, achieving notable results in industrial structure servitization, employment diversification, and urban-rural coordinated development. This case reveals the operational mechanism of industrial heritage revitalization as an “endogenous development strategy”—by activating local sunk assets, restructuring spatial

value, and cultivating new consumption scenarios, it realizes autonomous economic transformation without relying on external transfer payments.

Based on Leshan's experience, this paper proposes four policy implications: (1) Differentiated implementation—develop tailored plans according to heritage type, locational conditions, and market demand, avoiding a one-size-fits-all approach; (2) Market-oriented operation—establish a sustainable funding circulation mechanism involving “government guidance + social capital + community participation”; (3) Integrate into the rural revitalization framework—use industrial heritage revitalization as a lever to unlock rural stock assets and promote factor flows between urban and rural areas; (4) Cross-regional collaboration—integrate heritage resources along the corridor to build a national-level “Third Front Industrial Heritage Corridor” culture-tourism route, amplifying regional synergy and brand spillover value.

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